CASE

REPAIR MANUAL

Hydraulic Excavator

CX40B
CX50B

9-91940

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9194

Order the manual at mid-west-tech.com >

1. OUTLINE

TABLE OF CONTENTS

1.1 GENERAL PRECAUTIONS FOR REPAIRS 1-3
1.1.1 PREPARATION BEFORE DISASSEMBLING 1-3
1.1.2 SAFETY IN DISASSEMBLING AND ASSEMBLING 1-3
1.1.3 DISASSEMBLING AND ASSEMBLING HYDRAULIC EQUIPMENT 1-3
1.1.4 ELECTRICAL EQUIPMENT 1-4
1.1.5 HYDRAULIC PARTS 1-5
1.1.6 WELDING REPAIR 1-5
1.1.7 ENVIRONMENTAL MEASURE 1-5
1.2 INTERNATIONAL UNIT CONVERSION SYSTEM 1-6

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

2. SPECIFICATIONS

TABLE OF CONTENTS

2.1 COMPONENTS NAME 2-3
2.2 MACHINE DIMENSIONS 2-4
2.3 SPECIFICATIONS AND PERFORMANCE 2-6
2.4 MACHINE & COMPONENTS WEIGHT (DRY) 2-7
2.5 TRANSPORTATION 2-9
2.6 TYPE OF CRAWLER SHOES 2-11
2.7 TYPE OF BUCKET 2-12
2.8 ENGINE SPECIFICATIONS 2-14
2.8.1 SPECIFICATIONS 2-14
2.8.2 ENGINE PERFORMANCE CURVE 2-15

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

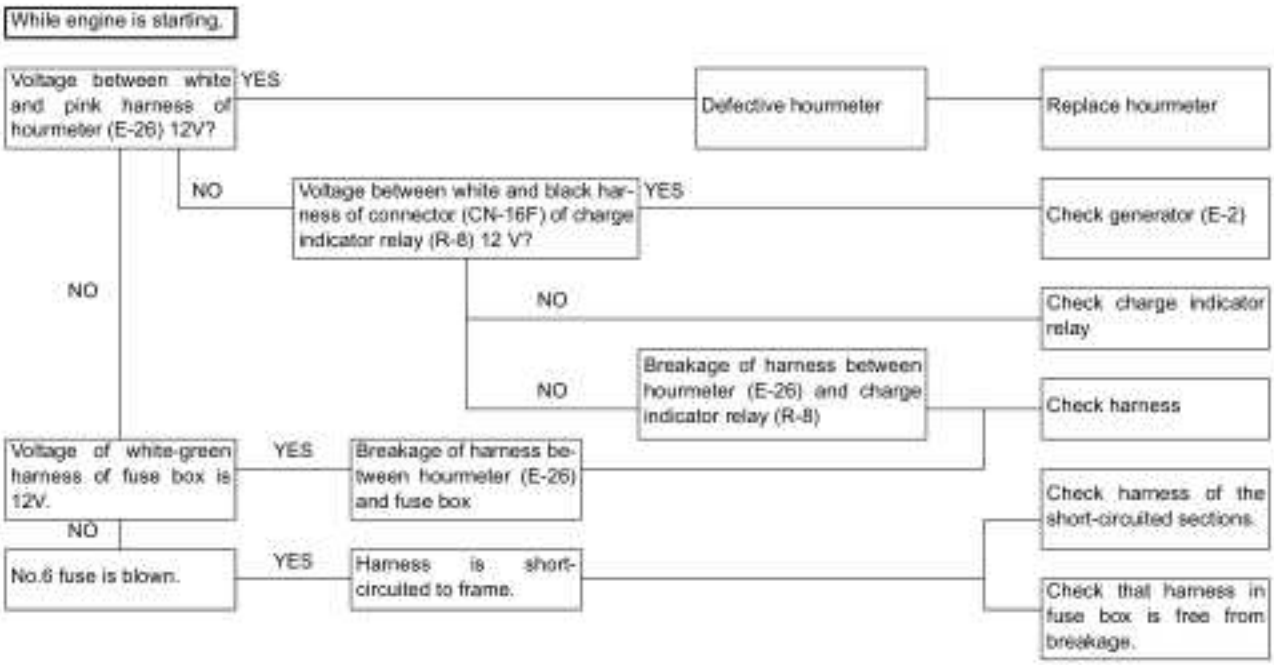
3. ATTACHMENT DIMENSIONS

TABLE OF CONTENTS

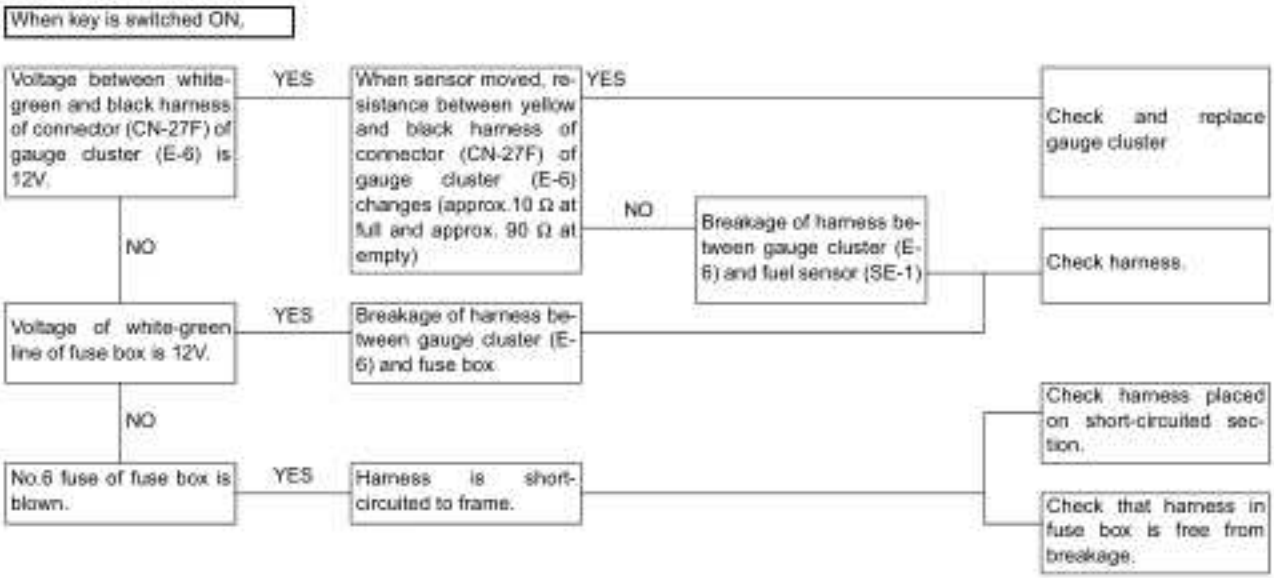
3.1 BOOM 3-3
3.1.1 BOOM DIMENSIONAL DRAWINGS 3-3
3.1.2 BOOM MAINTENANCE STANDARDS 3-4
3.2 ARM 3-7
3.2.1 ARM DIMENSIONAL DRAWINGS 3-7
3.2.2 ARM MAINTENANCE STANDARDS 3-9
3.3 BUCKET 3-13
3.3.1 BUCKET DIMENSIONAL DRAWINGS 3-13
3.3.2 DETAIL DIMENSIONAL DRAWINGS OF LUG SECTION 3-14
3.4 DOZER 3-15
3.4.1 DOZER DIMENSIONAL DRAWINGS 3-15
3.4.2 DOZER MAINTENANCE STANDARDS 3-16
3.5 SWING 3-18
3.5.1 SWING BRACKET DIMENSIONAL DRAWINGS 3-18
3.5.2 SWING PORTION MAINTENANCE STANDARDS 3-19

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

43.2.1.4 Hourmeter does not actuate.



43.2.1.5 Fuel gauge does not actuate.



MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

(5) 4TNV84

Engine name		Unit	4TNV84								
Engine specification class		-	CL		VM						
Type		-	Vertical, in-line, 4-cycle, water-cooled diesel engine								
Combustion chamber		-	Direct injection								
Number of x cylinders		-	4								
Cylinder bore x stroke		mm x mm	84 x 90								
Displacement		L	1.995								
Continuous rating	Revolving speed	Min^{-1}	1500	1800	-						
	Output	kW (hp)	14.9 (20.3)	17.7 (24.1)	-						
Rated output	Revolving speed	Min^{-1}	1500	1800	2000	2200	2400	2500	2600	2800	3000
	Output	kW (hp)	16.4 (22.3)	19.5 (26.5)	21.9 (29.8)	24.1 (32.8)	26.3 (35.8)	27.4 (37.3)	28.5 (38.7)	30.7 (41.7)	32.9 (44.7)
Max. no-load speed (±25)		Min^{-1}	1600	1895	2180	2400	2590	2700	2810	2995	3210
Ignition order		-	1-3-4-2-1(No.1 cylinder on flywheel side)								
Power take off		-	Flywheel								
Direction of rotation		-	Counterclockwise (viewed from flywheel)								
Cooling system		-	Radiator								
Lubrication system		-	Forced lubrication with trochoid pump								
Starting system		-	Electric								
Applicable fuel		-	Diesel ASTM N. 2-D tipo TT								
Applicable lubricant		-	SUPER GOLD 15W-40		SUPER GOLD 10W-30						
Lubricant capacity (oil pan)*	Total	L	7.4								
	Effective	L	2.3								
Coolant water capacity (engine only)		L	2.7								
Engine Dimensions ** (with flywheel housing)	Overall length	mm	683		658						
	Overall width	mm	498.5								
	Overall height	mm	617								
Engine mass (dry) ** (with flywheel housing)		kg	183		170						
Cooling fan (std.)		mm	370 mm O/D, 6 blades pusher type								
Crankshaft V pulley diameter & Fun V pulley diameter (std.)		mm	120 x 90		110 x 110						

* Engine oil capacity may differ from the above depending on an engine installed on a machine unit.
** Engine mass and dimensions without radiator.

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

51.3 TROUBLESHOOTING

51.3.1 PREPARATION BEFORE TROUBLESHOOTING

If the signs of a trouble appear, it is important to lecture on the countermeasure and treatment before becoming a big accident not to shorten the engine life.
When the signs of a trouble appear in the engine or a trouble occurs, grasp the trouble conditions fully by the next point and find out the cause of sincerity according to the troubleshooting. Then repair the trouble, and prevent the recurrence of the trouble.

1. What's the occurrence phenomenon or the trouble situation? (e.g. Poor exhaust color)
2. Investigation of the past records of the engine
   Check a client control ledger, and examine the history of the engine.
   - Investigate the engine model name and the engine number. (Mentioned in the engine label.)
     Examine the machine unit name and its number in the same way.
   - When was the engine maintained last time?
   - How much period and/or time has it been used after it was maintained last time?
   - What kind of problem was there on the engine last time, and what kind of maintenance was done?
3. Hear the occurrence phenomenon from the operator of the engine in detail.
   5W1H of the occurrence phenomenon:
   the investigation of when (when), where (where), who (who), what (what), why (why) and how (how)
   - When did the trouble happen at what kind of time?
   - Was there anything changed before the trouble?
   - Did the trouble occur suddenly, or was there what or a sign?
   - Was there any related phenomenon.
     ...(e.g. Poor exhaust color and starting failure at the same time)
4. After presuming a probable cause based on the above investigation, investigate a cause systematically by the next troubleshooting guide, and find out the cause of sincerity.

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

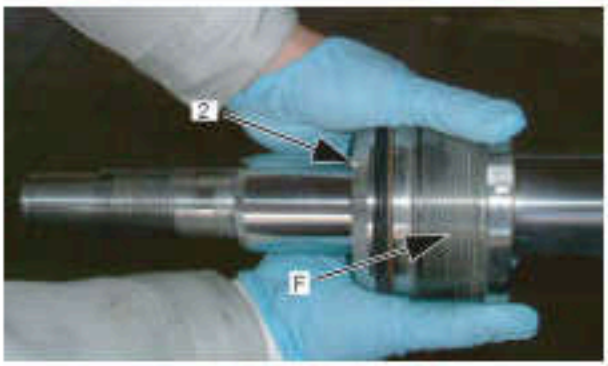
3) The O-ring of seal ring was extremely stretched at the installation, insert the piston subassembly (E) from the taper side of reforming jig (D) to reform the ring.



(4) Assembly of piston rod

1) Keep clevis of piston rod (2) horizontal, and install the head sub-assembly (F).

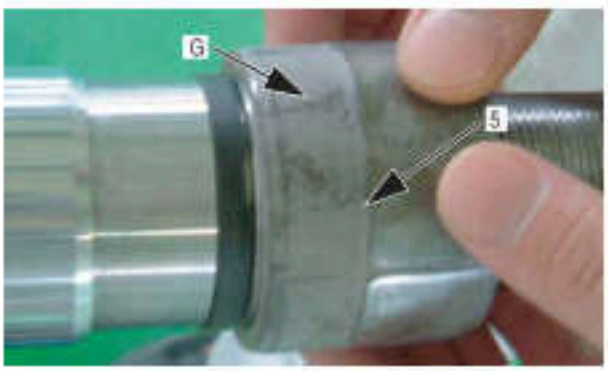
- Apply hydraulic oil to seal slightly.
- Take care not to hit the seal against the thread of piston rod.



2) Face the slit of seal ring (12) to the thread, and install the seal ring into groove of piston rod. Install the cushion bearing (5) on the rod from taper (G) side as shown in the photo.

- Take care of the direction of seal ring and cushion bearing.
  If the direction is mistaken, the cushion effect is not obtained.





MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

(6) Assembling hydraulic motor section

1) Put three rollers (151) into the holes of the cylinder block (104).

2) Place the thrust ball (108) on the cylinder block (104).

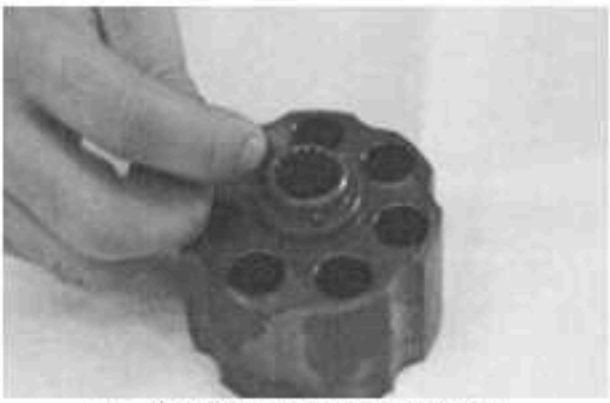


Fig. 34-168 Installing rollers (151)

3) Fit seven piston assemblies to the retainer plate (107).

- After assembling, immerse the whole unit in hydraulic oil.

4) Fit the retainer plate (107) and the seven piston assemblies to the cylinder block (104).

- Carefully match the retainer plate (107) with the spherical part of the thrust ball (108) for installation.

5) Insert the cylinder block (104) onto the drive shaft (102).

- For installation, align the spline hole in the cylinder block (104) with the spline shaft of the drive shaft (102).
- After installing the cylinder block, turn it by hand to make sure that it fits properly. If not, inspect it.
- Do not take up the cylinder block (104). Otherwise the thrust balls (108) may come off, leading to abnormality in rotation.



Fig. 34-169 Assembling piston assembly into retainer plate



Fig. 34-170 Inserting cylinder block (104)

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9... Order the manual at mid-west-tech.com >

(6) ARM CIRCUIT: Arm in operation

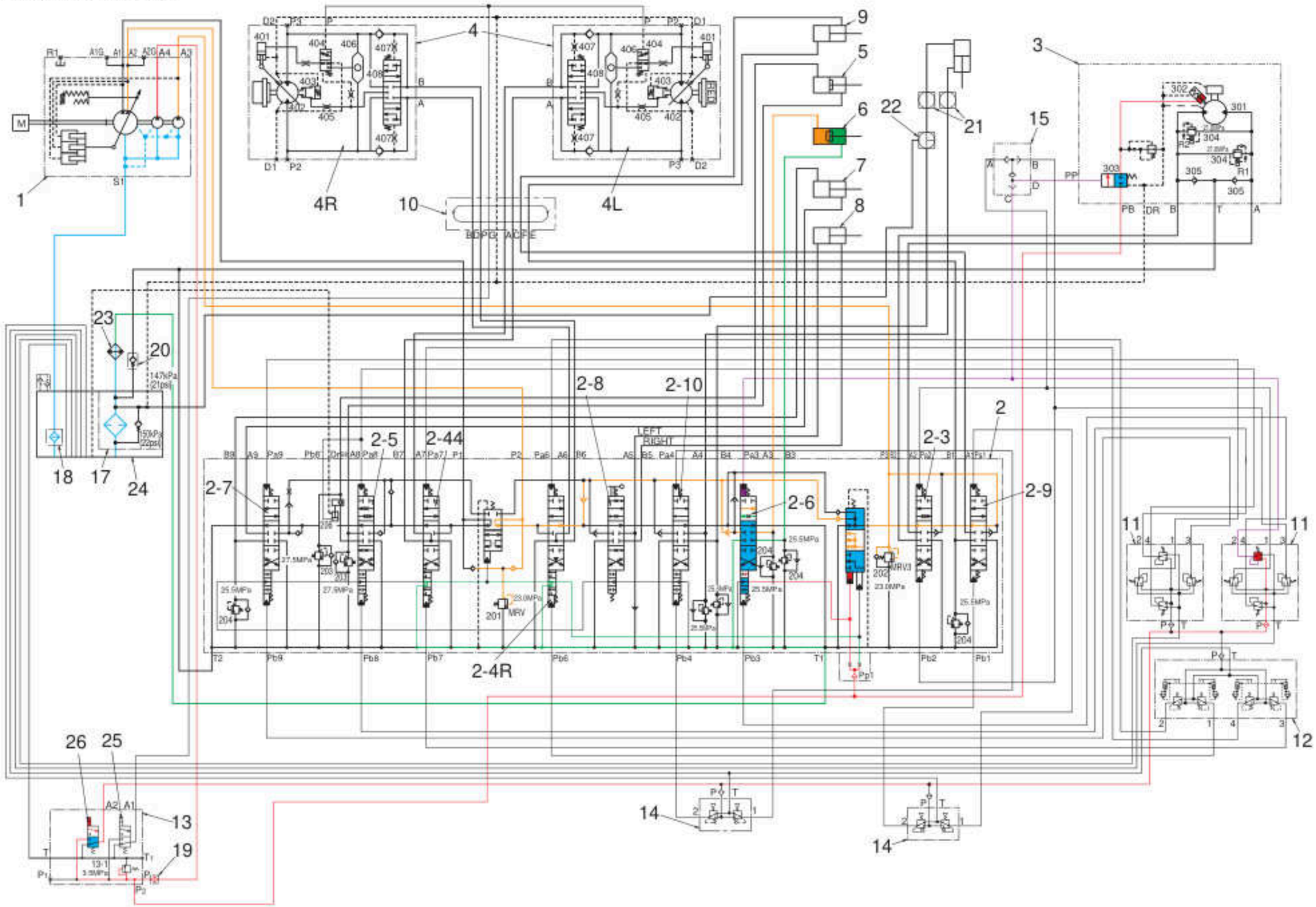


Fig. 71-7

MidWestTech | Case CX40B, CX50B Hydraulic Excavator Service Manual | Publication 9-9194

Order the manual at mid-west-tech.com >